

Preface

The last issue of the *IBM Systems Journal* focused on the subject of human factors, a scientific approach to the study of man-machine interaction. While much work is being done in this field, not all of it fits the strictest terms of the definition of human factors. The first three papers in this issue continue the exploration of the user-computer interface, but in the broader sense of usability.

Many computer applications today are interactive, and often the primary users are untrained in data processing skills. A system that is easy and comfortable to use becomes critical in these situations. Most interactive systems employ instructive or "help" display screens to provide users with the necessary information for understanding and using the system. The paper by Clark discusses some human factors work done on "help" screens for an IBM graphics program. A description of the design environment and the exercise used to draft and test the screens is included along with a discussion of lessons learned in screen design and system usability. The paper illustrates the blend of scientific study and experimental field testing which often characterizes the world of the program designer.

Making full-function data processing systems usable by business professionals was the objective of the VM/370 extensions developed by the IBM Canada Laboratory. Helander discusses this project and describes the program that resulted. The approach taken organized system user interactions into dialogues, with each dialogue comprising a set of operations on an object familiar to the end user, such as reports, memoranda, or programs.

Making programs easy to use extends beyond the architecture of the program itself and into the documentation that surrounds it and often becomes the key to its use. A study group has been established at the IBM Santa Teresa Programming Laboratory to study publication usability and recommend improvements. The paper by Bethke, Dean, Kaiser, Ort, and Pessin reports on the ongoing work of this group. Defining publication usability characteristics led to the development of a task-oriented architecture for publications. This architecture is described along with some techniques being developed for measuring and evaluating ease of use in publications. While the project is by no means finished, the paper describes some of the initial work in bringing usability considerations into this vital area of the man-machine interface.

An interactive area currently generating much interest, in which usability is integral to the success of the application, is that of

office systems. The evolutionary development of an automated office program used at several internal IBM sites is the subject of the paper by Gardner. This VM/370-based application package is the basis for a newly announced program product called PProfessional Office System (PROFS). In addition to covering the development of the application, this paper explores the experiences of the various different types of users.

The final paper discusses the development of a simple queuing model to determine whether a mass storage system could be used effectively as the primary on-line storage device for telemetry data streams during the Space Shuttle missions. In other words, can a mass storage system meet the performance requirements of real-time applications? The paper by Misra covers the development of the model, the derivation of staging capacity curves, and the validation, use, and results obtained from the model. In addition, the paper discusses generalization and expansion possibilities of the model.

Maintaining quality in a technical journal is a challenge that involves many different professionals. Integral to our success is the work of the referees who perform the peer review process for our papers. These professionals in various disciplines from within and outside IBM give of their time, knowledge, and experience anonymously. We of the *Journal* staff would like to acknowledge their invaluable contributions and extend our thanks for their involvement. A list of our recent referees begins on page 365.

This issue is my last as Editor of the *IBM Systems Journal*. These four years have been both exciting and challenging. Software technology is changing and evolving rapidly, and I have tried to give you, the reader, a sampling of that cornucopia of activity within IBM. Hopefully, the increasing use of theme issues has put some perspective on this activity and the range of papers, from essays to practical applications, has matched your needs. I would like to take this opportunity to thank those who have made my editorship of the *Journal* so rewarding—my management, my associate editors, the production staff, and the authors whose papers I have been privileged to publish. I hope that they will be as helpful to my successor, John Lacy.

Connie Thiel
Editor